

UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF MISSOURI
EASTERN DIVISION

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|--------------------------------|---|--------------------------|
| THOMAS E. HOWARD, JR., et al., |) | |
| |) | |
| Plaintiffs, |) | |
| |) | |
| v. |) | Case No. 4:17 CV 763 CDP |
| |) | |
| BOSCH THERMOTECHNOLOGY |) | |
| CORP., |) | |
| |) | |
| Defendant. |) | |

MEMORANDUM AND ORDER

Plaintiffs Thomas E. Howard, Jr. and Janice K. Howard claim that the defective design of a water heater manufactured, designed, and sold by defendant Bosch Thermotechnology Corp. caused a fire that destroyed their home in November 2013. They bring this products liability action in diversity against Bosch, asserting claims of strict liability for defective design, strict liability for failure to warn, and negligent design and failure to warn. Bosch seeks to exclude the opinion evidence of the Howards' two expert witnesses and also moves for summary judgment. I will grant Bosch's motions to exclude. Because without this opinion evidence the Howards have no evidence from which a reasonable jury could find that a defect in the water heater proximately caused the fire, I will grant summary judgment to Bosch.

Background

On November 14, 2013, a fire destroyed a lake house owned by plaintiffs Thomas and Janice Howard. Plaintiffs were not at the house at the time of the fire, having left the property three days earlier on November 11. Shortly before they left the house, Janice washed a few dishes in the kitchen sink using hot water. Thomas had already turned off the water intake to the house.¹

The fire was reported in the early morning hours of November 14. James Doyle, the fire marshal of the Lake Ozark Fire Protection District, was the incident commander on the fire. The fire was brought under control in about seventy-five minutes, and the last fire unit left the scene about two hours later. Heavy equipment moved debris later that day so that remaining hidden fires could be extinguished.

During the course of his investigation, Doyle determined that the fire started in the utility room on the lower level of the house. Based on his observations of that area, Doyle suspected that the water heater caused the fire. After Doyle interviewed the Howards regarding their conduct before leaving the house, he concluded that the water heater indeed caused the fire and reported this conclusion in his fire inspection report. Specifically, Doyle reported that the circumstance of Thomas turning off the water intake and Janice continuing to use hot water

¹ Because the plaintiffs share the surname “Howard,” I will refer to each plaintiff by their first name when I need to distinguish between them. No disrespect is intended.

caused the hot water heater to be in the on position with no water to heat or keep the pipe cool (creating [an] air pocket) that I believe heated the pipe to failure and being against combust able [sic] walls and material over time cause the fire with no one home or close to see and given the time of day the fire [was] able to advance without notice. [G]iven this theory and the closeness to the area of origin I can not disprove it as a possible cause and find the incident to be ruled accidental and close the file.

(ECF #28-8, Doyle Report at p. 13.)

Plaintiffs secured Dr. Kelly Homan, an associate professor of mechanical engineering, to analyze the Bosch water heater and assess its potential as a fire hazard. Homan reviewed Doyle's report, examined the remains of the original water heater, examined a new water heater unit, and searched the internet for similar incidents of fire. Applying engineering analyses with respect to heat flux, surface temperatures, and heat transfer in relation to radiant woodstoves and flue vents, as well as analyses regarding combustion temperatures of various surfaces including gypsum wallboard, cellulosic wood material, maple, redwood, wallpaper, and carpet, Homan concluded that if the Bosch water heater were to go into an overheat event, it could produce heat flux on a mounting surface at levels sufficient to cause a fire. Homan then concluded that it was more likely than not that the Bosch water heater caused the Howard fire. (ECF #48-1, Homan Report.)

Homan did not claim that any system or component within the water heater unit failed, and he could not conclude that the water heater went into an overheat event. Homan based his conclusion that the fire originated at the location of the

water heater on Doyle's conclusion made in the fire investigation report.

Bosch moves to exclude the expert opinions of both Doyle and Homan.

Bosch also moves for summary judgment, arguing, *inter alia*, that without expert opinion evidence, the Howards cannot prove that the water heater caused the fire.

Discussion

In Missouri, to prevail on a strict liability products defect claim, a plaintiff “must prove that the product was defective and dangerous when put to a reasonable use anticipated by the manufacturer and that the plaintiff sustained damage as a direct result of the defect.” *Sappington v. Skyjack, Inc.*, 512 F.3d 440, 446 (8th Cir. 2008) (quoting *Peters v. Gen. Motors Corp.*, 200 S.W.3d 1, 17 (Mo. Ct. App. 2006)). A claim alleging design defect involves a product that, by nature of its design, is unreasonably dangerous, regardless of whether or not a warning is given. *Moore v. Ford Motor Co.*, 332 S.W.3d 749, 757 (Mo. banc 2011); *Smith v. Brown & Williamson Tobacco Corp.*, 275 S.W.3d 749, 791-92 (Mo. Ct. App. 2008).

For a strict liability failure-to-warn claim, a plaintiff must prove, *inter alia*, that the defendant's product was unreasonably dangerous at the time of sale when put to its reasonably anticipated use without knowledge of its characteristics, that the defendant failed to include an adequate warning, and that the plaintiff was damaged as a result of the lack of adequate warning. *Pitman v. Ameristep Corp.*, 208 F. Supp. 3d 1053, 1061-62 (E.D. Mo. 2016). “The last element requires both

the product without the warning caused the plaintiff's injuries and the warning would have altered the behavior of those involved in the accident." *Id.* at 1062 (citing *Arnold v. Ingersoll–Rand Co.*, 834 S.W.2d 192, 194 (Mo. banc 1992)).

"To prove a negligent design claim under Missouri law, a plaintiff must show that the defendant breached its duty of care in the design of a product and that this breach caused the injury." *Stanley v. Cottrell, Inc.*, 784 F.3d 454, 463 (8th Cir. 2015). A claim alleging negligent failure to warn focuses on what the manufacturer knew. For such a claim, a plaintiff must show that the defendant failed to use ordinary care to "adequately warn of the risk of harm" from the alleged defect and that, "as a direct result of such failure, . . . plaintiff sustained damage." *Johnson v. Auto Handling Corp.*, 523 S.W.3d 452, 465, 466 (Mo. banc 2017).

Whether proceeding on a theory of negligence or strict liability, a plaintiff must prove that the defect in the product or the negligence of the defendant in the design proximately caused the plaintiff's injuries. *Strong v. Am. Cyanamid Co.*, 261 S.W.3d 493, 506 (Mo. Ct. App. 2007), overruled on other grounds, *Badahman v. Catering St. Louis*, 395 S.W.3d 29 (Mo. banc 2013); *Willard v. Bic Corp.*, 788 F. Supp. 1059, 1063 (W.D. Mo. 1991). Without evidence of defect, a plaintiff cannot establish that a defect proximately caused his injuries. In such circumstances, summary judgment for the defendant manufacturer is appropriate. *Pro Serv. Auto., L.L.C. v. Lenan Corp.*, 469 F.3d 1210, 1216 (8th Cir. 2006); *Fireman's Fund Ins.*

Co. v. Canon U.S.A., Inc., 394 F.3d 1054, 1060-61 (8th Cir. 2005).

Although expert testimony is not necessarily required in a products liability case, it is necessary if determining a relevant factual issue involves information that is so complex or technical that no fact finder could resolve the issue without help. *Pro Serv. Auto.*, 469 F.3d at 1214; *Stone v. Mo. Dep't of Health & Senior Servs.*, 350 S.W.3d 14, 21 (Mo. banc 2011). The Howards in this case allege that the defective design of the Bosch water heater caused it to overheat and release heat at such levels to combust the wall on which it was mounted. Because of the complexities involved in linking a component failure of the water heater to the release of combustible heat levels to the surrounding environment, a lay jury would not possess the experience or knowledge necessary to determine causation. Therefore, expert opinion as to causation is required in order for the Howards' claims to survive summary judgment. *Pro Serv. Auto.*, 469 F.3d at 1214.

The Howards proffer the expert opinions of Fire Marshal Doyle and Dr. Homan to support their allegation that the defective design of the Bosch water heater caused the fire. For the following reasons, I will exclude these opinions. Because the Howards have no other evidence of causation, I will grant Bosch summary judgment on the Howards' claims.

A. James Doyle

1. *Disclosure*

Bosch argues first that I should exclude Doyle's expert opinion and evidence

because the Howards did not disclose him as an expert witness. I agree.

I may exclude from evidence at trial any matter that was not properly disclosed in compliance with my pretrial orders. *Brooks v. Union Pac. R. Co.*, 620 F.3d 896, 899 (8th Cir. 2010). This applies to a party's failure to disclose an expert witness as required by a pretrial scheduling order, including non-retained fact witnesses to the extent they render an expert opinion to explain causation of an injury. *Id.*

In my Case Management Order entered April 13, 2017, I ordered plaintiffs to disclose all expert witnesses and provide the reports required by Fed. R. Civ. P. 26(a)(2) no later than August 11, 2017. I also ordered plaintiffs to make their expert witnesses available for depositions, and have depositions completed, no later than September 22, 2017. While plaintiffs disclosed Doyle's fire investigation report in June 2017, they never disclosed Doyle as an expert. In fact, when plaintiffs timely disclosed Dr. Homan in August 2017, they informed Bosch that they did "not have any other experts."² Plaintiffs did not make Doyle available for deposition before September 22. Bosch arranged for Doyle's deposition, which took place beginning in December 2017 and was completed in January 2018.

Plaintiffs do not dispute that they did not disclose Doyle as an expert, but they argue that Doyle's testimony is mostly that of a fact witness and that, to the

² ECF #35-1.

extent he rendered an opinion as to the cause and origin of the fire, he should be treated as a non-retained expert, much like a treating physician. Whether retained or non-retained, witnesses rendering expert opinions are required to be disclosed as experts when ordered by the Court. *Brooks*, 620 F.3d at 899; Fed. R. Civ. P.

26(a)(2). For a non-retained expert, as the Howards characterize Doyle, such disclosure must state the subject matter on which he is expected to testify and a summary of the facts and opinions to which he is expected to testify. Fed. R. Civ. P. 26(a)(2)(C). The Howards failed to do this.

Because the Howards failed to timely disclose Doyle as an expert and failed to timely make him available for deposition and have his deposition completed as ordered, I will exclude his testimony and evidence to the extent he renders an expert opinion regarding the cause and origin of the fire.

2. *Reliability*

Bosch also argues that Doyle's expert opinion is not reliable and thus is not admissible under *Daubert*³ and its progeny. I agree and will exclude Doyle's expert opinion evidence on this alternate basis as well.

The opinion of a qualified expert witness is admissible if: 1) it is based upon sufficient facts or data, 2) it is the product of reliable principles and methods, and 3) the expert has applied the principles and methods reliably to the facts of the case. Fed. R. Evid. 702. Trial courts are given wide latitude in determining

³ *Daubert v. Merrell Dow Pharm., Inc.*, 509 U.S. 579 (1993).

whether an expert's testimony is reliable. *Kumho Tire Co. v. Carmichael*, 526 U.S. 137, 152 (1999). The purpose of motions to exclude expert testimony is to ensure that only reliable and relevant expert testimony is presented to a jury. *Russell v. Whirlpool Corp.*, 702 F.3d 450, 456 (8th Cir. 2012).

As an initial matter, although Doyle opined that the Howards' Bosch water heater overheated and caused the fire, Doyle admittedly is not "proficient" with Bosch water heaters and only knows "in theory" how they generally work.⁴ He therefore has no expertise or any other basis upon which to form an opinion as to how the Bosch water heater performed in the given circumstance, let alone that the water heater remained on and that its pipes overheated and failed. His opinion that the water heater failed would therefore not be helpful to a jury. *See Willard*, 788 F. Supp. at 1066-67 (excluding expert opinion testimony that the product malfunctioned where witnesses failed to demonstrate any expertise regarding the product or its malfunction). Assuming for purposes of this discussion only, however, that Doyle's extensive experience as a firefighter, fire marshal, and fire investigator qualifies him as a fire cause and origin expert, I nevertheless cannot find that he based his causation opinion on sufficient facts or that he applied otherwise generally acceptable methods reliably to the facts of the case.

When determining the reliability of an expert's opinion, I examine four non-exhaustive factors: (1) whether the opinion can be (and has been) tested; (2)

⁴ ECF #35-2, Doyle Dec. Depo. at p. 94.

whether the theory or technique has been subjected to peer review and publication; (3) the known or potential rate of error; and (4) the method's general acceptance. *Daubert v. Merrell Dow Pharm., Inc.*, 509 U.S. 579, 593-94 (1993); *Presley v. Lakewood Eng'g & Mfg. Co.*, 553 F.3d 638, 643 (8th Cir. 2009). I may also consider whether the expert ruled out other alternative explanations. *Presley*, 553 F.3d at 643.

Doyle testified that he applied the NFPA 921 methodology in formulating his opinion as to the cause and origin of the Howard fire.⁵ NFPA 921 is a well-accepted standard set forth by the National Fire Protection Association by which fire investigations are to be conducted. It requires that hypotheses of fire origin be carefully examined against empirical data obtained from the fire scene and appropriate testing. *See Fireman's Fund*, 394 F.3d at 1057-58; *see also Presley*, 553 F.3d at 645. Doyle considers the NFPA 921 method to be the "gold standard" for fire investigations.⁶ Although NFPA 921 is not the only approved method of fire investigation, an expert who purports to follow NFPA 921 must apply it reliably, or his testimony may be excluded. *Manuel v. MDOW Ins. Co.*, 791 F.3d 838, 845 (8th Cir. 2015).

Doyle testified that he concluded from the "V"-shaped pattern of the overall

⁵ ECF #49-1, Doyle Dec. Depo. at p. 34.

⁶ *Id.* at p. 23.

burn that the fire started on the lower level of the house in the utility room.⁷ He hypothesized that the water heater was the source of the fire based on the following observations: a “clean burn” on a concrete wall in the utility room, which demonstrates that the fire in that area was hot enough and intense enough to complete combustion of all carbon, and thus was more likely than not the seat of the fire; a missing wooden sill plate on that portion of the concrete wall; and the remnants of the water heater in the area.⁸ When Doyle later talked with the Howards and learned of their conduct relating to the hot water before they left the property, Doyle considered the circumstances to be consistent with his suspicion that the water heater was the source of the fire, and he concluded that the water heater became stuck in the “on” position when Janice used the water, causing the copper pipes to overheat and fail.⁹

Although NFPA 921 suggests that fire theories involving an appliance be substantiated by testing of exemplar appliances, *see Presley*, 553 F.3d at 645, Doyle conducted no tests. Nor does he recall ruling out certain other possible sources of fire, such as an electrical panel or other appliances that were also

⁷ ECF #46-1, Doyle Jan. Depo. at pp. 10-11.

⁸ *Id.* at pp. 47-48, 54-56, 84, 110-11; ECF #47-1, Doyle Jan. Depo. at pp. 91-92.

⁹ ECF #35-2, Doyle Dec. Depo. at p. 96; ECF #46-1, Doyle Jan. Depo. at pp. 84, 96.

located in the utility room.¹⁰ Indeed, Doyle does not recall the presence of any other appliance in the utility room despite Thomas's undisputed testimony that the furnace, washer and dryer, water softener, and electric utility box were in that room.¹¹ Nor could Doyle recall making any observations regarding gas lines despite the presence of a 250-gallon propane gas tank near the house.¹² Doyle's lack of knowledge regarding the presence of other fire sources in the area of origin detracts from the reliability of his opinion. *Cf. Hickerson v. Pride Mobility Prod. Corp.*, 470 F.3d 1252, 1257 (8th Cir. 2006).

In addition, the fire investigation report itself contains contradictions. As noted above, Doyle concluded in his report that the water heater was stuck in the "on" position, causing its pipes to overheat and fail and result in fire to abutting combustible walls and materials. Elsewhere in this report, however, Doyle indicated that the heat source for ignition, the item first ignited, and the material ignited were all "undetermined."¹³ Further, in a section of the report devoted specifically to suspected or failed equipment, he provided no information.¹⁴ The

¹⁰ Doyle did recall being able to rule out wind as a factor in the fire as well as improper storage of items such as gasoline or an overabundance of items such as batteries. (ECF #47-1, Doyle Jan. Depo. at pp. 46-47; ECF #46-1, Doyle Jan. Depo. at pp. 50-51.)

¹¹ See ECF #51-2, T. Howard Depo. at pp. 36-38.

¹² ECF #49-1, Doyle Dec. Depo. at p. 105; ECF #35-5, T. Howard Depo. at p. 102.

¹³ ECF #28-8, Doyle Report at p. 4.

¹⁴ *Id.*

presence of contradictory opinions seriously undermines their reliability. *See Fireman's Fund*, 394 F.3d at 1059.

Finally, there was no meaningful peer review in this case. Doyle testified that he formed his water heater hypothesis and then conferred with his colleagues, including the fire chief, to see if his idea was reasonable and if their thoughts aligned with his. Doyle admitted that this review was nothing “official” or “written down” and that they just bounced ideas back and forth, but he testified that his colleagues “pretty much well agreed that I was probably on the right track.”¹⁵ Bouncing a theory off of coworkers or supervisors to see if they agree is not “peer review.” NFPA 921 § 4.6.3. To the extent this may be a “technical review” under NFPA 921, nothing before the Court shows that Doyle’s colleagues had access to all documentation relevant to the investigation when they “reviewed” Doyle’s hypothesis, which is required for such a review. *See id.* at § 4.6.2.

Based on the above, I cannot find that Doyle applied the NFPA 921 method reliably to the circumstances of this case. He did not reliably test his water heater hypothesis, either by subjecting an exemplar to testing or by undergoing rigorous peer review as contemplated by NFPA 921. The evidence does not show that Doyle carefully examined his water heater hypothesis against all empirical data obtained from the fire scene, and, indeed, it appears that he based his theory on incomplete and inaccurate facts. NFPA 921 § 4.3.9. “Conclusions, which are final

¹⁵ ECF #46-1, Doyle Jan. Depo. at pp. 56-57, 107-08; ECF #51-1, Doyle Jan. Depo. at p. 90.

hypotheses, are drawn as a result of testing the hypotheses.” *Id.* at § 4.4.6.

“Conclusions based on incorrect data are likely to be incorrect themselves.” *Id.* at § 4.6.3.2.

Because Doyle’s expert opinion that the Bosch water heater caused the fire is unreliable, I will exclude his opinion. *Fireman’s Fund*, 394 F.3d at 1060.

B. Dr. Homan

I will likewise exclude Dr. Homan’s expert opinion as unreliable.

As noted above, Homan reviewed Doyle’s report, examined the remains of the original water heater, examined a new water heater unit, and searched the internet for similar incidents of fire. He did not conduct any tests. Instead, he considered engineering heat analyses in relation to radiant woodstoves and flue vents and extrapolated those analyses to the water heater here. He also analyzed combustion temperatures of various surfaces including gypsum wallboard, cellulosic wood material, maple, redwood, wallpaper, and carpet, but he admittedly did not know the material of the mounting surface in the Howards’ home or the manner by which the water heater was mounted to the surface. Nor did Homan know the material used for or the dimensions of the vent pipe attached to the water heater. In addition, when Homan examined the original water heater, various of its components were missing, including the mounting mechanism(s) and a galvanized steel combustion compartment cover. Homan did not know whether these

components were missing at the time of the fire.¹⁶ Nevertheless, based on his analyses, Homan concluded that if the Bosch water heater were to go into an overheat event, it could produce heat flux on the mounting surface at levels sufficient to cause a fire. Homan then concluded that it was more likely than not that the Bosch water heater caused the Howard house fire.¹⁷

Homan admittedly has no experience as a fire cause and origin investigator, nor has he ever before performed an engineering forensic analysis on any item.¹⁸ Although he opined that the water heater could cause a fire if it went into an overheat event, he offered no opinion as to whether the water heater went into such an event; nor did he offer an opinion as to any specific defect in the water heater that might have caused it to overheat. In fact, Homan testified that he could *not* render an opinion regarding whether the water heater overheated or whether any component of the water heater failed.¹⁹ Instead, Homan focused on the absence of sufficient insulation on the back of the water heater as a design defect, opining that this lack of insulation could cause heat to escape at levels sufficient to combust certain nearby materials *if* the water heater overheated.²⁰ But because there is no

¹⁶ ECF #28-2, Homan Depo. at pp. 40-41, 66-70, 72-73, 93-94.

¹⁷ *Id.* at pp. 85-86.

¹⁸ *Id.* at pp. 17, 81-82.

¹⁹ *Id.* at pp. 105-07.

²⁰ ECF #48-1, Homan Report.

evidence that a defect in the water heater caused it to overheat, Homan's opinion that additional insulation would prevent combustible levels of heat from escaping is irrelevant to the Howards' claims. *Pro Serv. Auto.*, 469 F.3d at 1216.

In addition, Homan conducted no tests on the exemplar – whether to see if it would overheat or to determine if there was a defect that would cause the water heater to overheat. I may exclude an expert's opinion that a defective product caused a fire where the expert cannot adequately demonstrate how a component of the product failed. *See Fireman's Fund*, 394 F.3d at 1059; *Weisgram v. Marley Co.*, 169 F.3d 514, 521 (8th Cir. 1999).

Nor did Homan conduct any tests on the exemplar to measure radiative heat from the product. His analyses regarding radiative heat and combustion levels did not involve Bosch water heaters or consider the material on which the water heater was mounted in the Howards' home. Instead Homan based his analyses on an extrapolation of general scientific principles applied to products unrelated to the challenged product here. “Where opinion evidence . . . is connected to existing data only by the *ipse dixit* of the expert,” I may conclude that “there is simply too great an analytical gap between the data and the opinion proffered.” *Pro Serv. Auto.*, 469 F.3d at 1216 (internal quotation marks and citations omitted). *See also Presley*, 553 F.3d at 646 (“[O]pinions formulated merely upon general observations of the evidence and general scientific principles [are] unreliable.”) (citing *Pro Serv. Auto.*, 469 F.3d at 1215-16; *Weisgram*, 169 F.3d at 519 (8th Cir.

1999)). I make this conclusion here.

Finally, Homan testified that his conclusion that the Howard fire originated at the location of the water heater was based on Doyle's conclusion made in the fire inspection report.²¹ But because Doyle's conclusion is unreliable, it does not provide a sufficient foundation for Homan's similar conclusion. *See Weisgram*, 169 F.3d at 520.

In short, there is no reasonable factual basis for Homan's opinion that a design defect of the water heater caused the Howard fire. He offers nothing more than conjecture as to whether or not the water heater was defective. This testimony is therefore unreliable under Rule 702 and will be excluded. *Weisgram*, 169 F.3d at 519-20.

C. Failure to Warn

Failure-to-warn claims arising under theories of both strict liability and negligence require the plaintiff to show that the product for which there was no warning caused the alleged injuries. *Moore*, 332 S.W.3d at 761. Because without expert testimony the Howards cannot prove that the Bosch water heater caused the fire, their failure-to-warn claims fail.

D. Summary Judgment

Without the necessary expert testimony, the Howards have no evidence that

²¹ ECF #28-2, Homan Depo. at pp. 78, 80-81.


a defect in the Bosch water heater was the proximate cause of the fire. Bosch is therefore entitled to summary judgment on the Howards' claims of strict products liability, failure to warn, and negligent design. *Pro Serv. Auto.*, 469 F.3d at 1216; *Fireman's Fund*, 394 F.3d at 1062.

Accordingly,

IT IS HEREBY ORDERED that defendant Bosch Thermotechnology Corp.'s Motions to Exclude Testimony of Kelly Homan [28] and of James Doyle [34] are **GRANTED**.

IT IS FURTHER ORDERED that defendant Bosch Thermotechnology Corp.'s Motion for Summary Judgment [30] is **GRANTED**.

A separate Judgment is entered herewith.



CATHERINE D. PERRY
UNITED STATES DISTRICT JUDGE

Dated this 4th day of May, 2018.